UTAH GEOLOGICAL AND MINERALOGICAL SURVEY

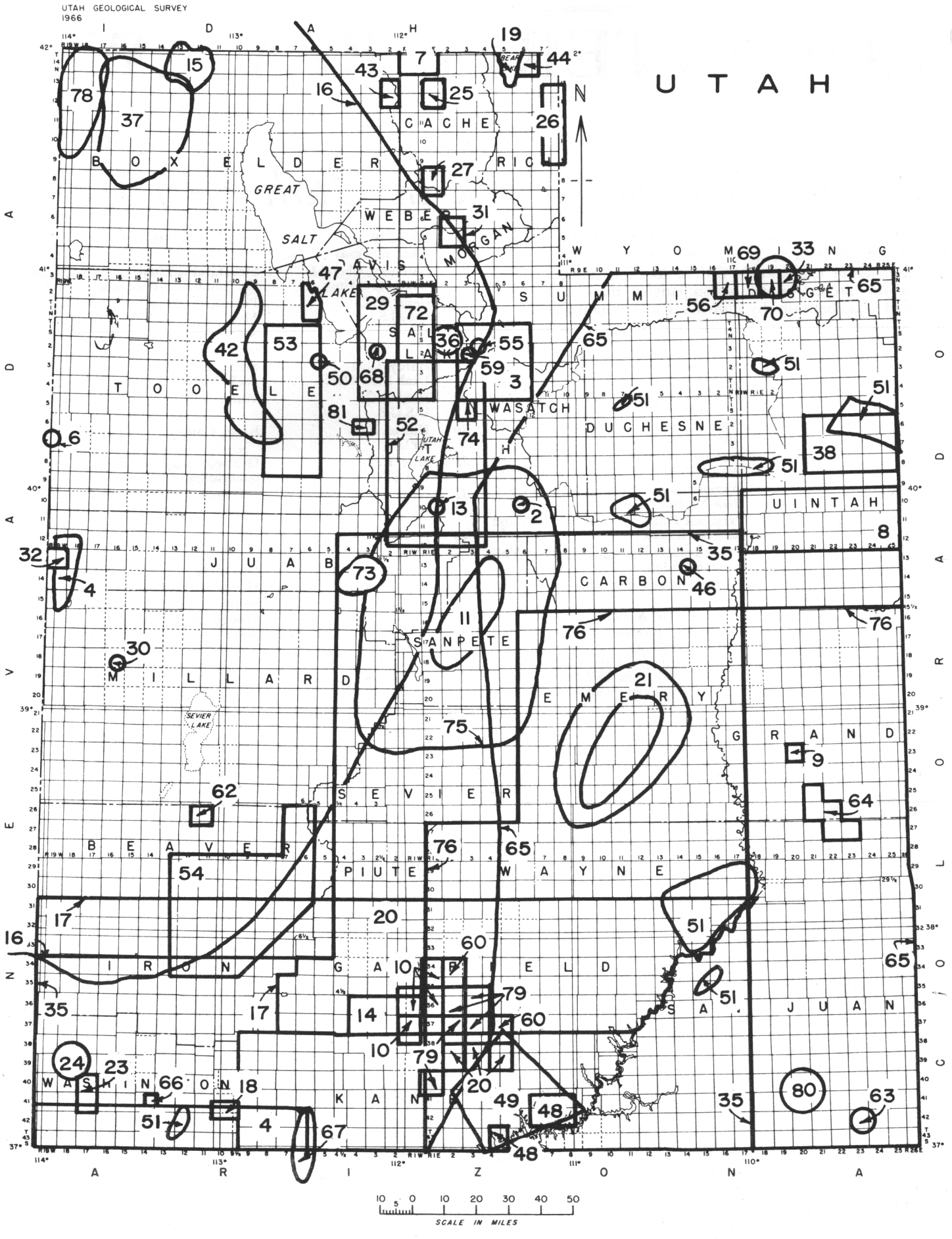
QUARTERLY REVIEW

Vol. 2, No. 2 — *Geologic Investigation in the State of Utah* — *May, 1968*

Summer Field Work in Utah — 1968

The list below represents geological work scheduled for the summer of 1968 in Utah. The reference number in the left column corresponds with a location number for a particular project on the accompanying map. Projects are listed alphabetically by individual and organization.

1	Anderson, John J. Kent State Univ.	Northern Markagunt and southern Tushar plateaus
2	Baer, James L. BYU	Paleoecology of cyclic sediments in the lower Green River (Eocene) of central Utah
3	Baker, C. H., Jr. U.S.G.S.	Water resources of the Heber - Park City - Kamas area
4	Best, M. G. BYU	Plutonic rocks and late Cenozoic basalts of SW Utah
5	Bissell, H. J. BYU	Permo-stratigraphy of the Utah-Arizona-Nevada corner area
6	Bissell, H. J. BYU	Ferguson Flat area, western Utah and eastern Nevada
7	Bjorklund, L. J. U.S.G.S.	Ground-water resources of Cache Valley, Utah-Idaho
8	Black, C. C. Carnegie Museum	Vertebrate Paleontology of the Uinta Basin
9	Bodily, Norman M. BYU	Description of Armored Dinosaur from the upper Jurassic or lower Cretacious, near Moab, Utah
10	Bowers, W. B. U.S.G.S.	Geological maps of the Griffin Point, Upper Valley, Pine Lake, and Henrieville quadrangles, Garfield County, Utah
11	Brown, Robert P. Utah Geol. Survey Univ. of Utah	Gravity studies in Sanpete Valley
12	Bullock, K. C. BYU—Utah Geol. Survey	Iron occurrences of Utah
13	Bushman, J. R. BYU	Pollen and spores from the Santaquin cave archeological site
14	Bushman, J. R. BYU	Palynomorph zonation of the Cretaceous of southern Utah
15	Compton, Robert Stanford Univ.	Geology of the eastern part of the Raft River Mtns. Box Elder Co., Utah
16	Condie, Kent C. Washington Univ. St. Louis, Mo.	Geochemistry of granitic plutons in the eastern Great Basin in Utah and Nevada
17	Cronenwett, Charles E. Univ. of Utah	Regional mineralization of Washington and Iron Counties
18	Dalness, William Univ. of Utah	Study of the Parunuweap Formation, Zion National Park
19	Davidson, Dean F. Utah State Univ.	Geochemical aspects of Bear Lake sediments, Utah-Idaho
20	Doelling, Hellmut H. Utah Geol. Survey	Study of the Garfield County nonmetallic deposits; coal investigation northern Kane County, Kaiparowits coal field, Garfield and Kane Counties
21	Dover, R. J. Utah State Univ.	Paleoecology of the lowermost Carmel Formation (Jurassic) San Rafael Swell, Emery County, Utah
22	Eliason, James F. Utah State Univ.	The upper Devonian formations of central northern Utah
23	Embree, Glenn F. BYU	Chemical and mineralogical variability in the Gunlock diabase flow, Washington County, Utah
24	Finch, W. I. Univ. of Texas	Gold Strike district
25	Galloway, Cheryl L. Utah State Univ.	Structural geology of eastern part of the Smithfield quadrangle, Utah
26	Gere, W. C. U.S.G.S.	Phosphate deposits of the Crawford Mountains, Utah and Wyoming
27	Hardy, Clyde T. Utah State Univ.	Structural geology of James Peak quadrangle, Utah
28	Hardy, Clyde T. Utah State Univ.	Structural geology of Malad and Bannock Ranges, Utah-Idaho
29	Hely, A.G. U.S.G.S.	Water resources of Salt Lake County
30	Hintze, L. F. BYU	Kings Canyon, Confusion Range
31	Hite, R. J. U.S.G.S.	Geologic map of the Ogden 4NW quadrangle, Morgan County, Utah
32	Hogg, Norman C. BYU	Petrology and geochemistry of pelitic schists, eastern Deep Creek Mountains, Juab County, Utah
33	Hoggan, Roger D. BYU	Systematics and paleoecology of the Curtis Formation in the Uinta Mountain area, Daggett County, Utah
34	Hood, J. W. U.S.G.S.	Hydrologic reconnaissances of western basins of Utah
35	Irwin, C. Dennis, Jr. Univ. of New Mexico	Stratigraphic analysis of the lower Triassic and upper Permian strata in southern Utah (Ph.D)
36	Kaliser, Bruce N. Utah Geol. Survey	Engineering geology of the Wasatch front, SE Salt Lake County
37	Khattab, M. M. Utah Geol. Survey Univ. of Utah	Gravity studies in northwestern Utah, Box Elder County
38	Koesoemadinata, R. P. Colo. School of Mines	Stratigraphy and petroleum occurrence, Green River Formation, Red Wash field, Utah
39	Krempasky, George T. U.S. Bureau of Mines	Silver resources of Utah
40	Lessard, R. H. Univ. of Utah	Cretaceous foraminifera of eastern Utah (Ph.D)
41	Marzolf, J. E. UCLA	Navajo sandstone of southeastern Utah (Ph.D)
42	Maurer, Robert E. Univ. of Utah	Geology of the Cedar Mountains (Ph.D)
43	Maw, G. G. Utah State Univ.	Surficial geology of the Cutler Dam quadrangle, Cache and Box Elder Counties, Utah
44	McClurg, Larry W. Utah State Univ.	Erosion and sedimentation of North Eden Creek, Utah-Idaho
45	Nelson, Michael E. Univ. of Utah	Mesozoic-Cenozoic boundary problem, central Wasatch and vicinity
46	Osterwald, F. W. U.S.G.S.	Geology of coal mine bumps, central Utah
47	Palmer, Dennis E. BYU	Geology of Stansbury Island
48	Peterson, Fred U.S.G.S.	Geology of the Cummings Mesa 15 minute quadrange, and SW¼ of the Gunsite Butte quadrangle, Kane and San Juan Counties, Utah and Coconino County, Arizona
49	Peterson, Fred U.S.G.S. thesis	Stratigraphy of Cretaceous formations on the southeastern Kaiparowits region, Utah (Stanford thesis)
50	Peterson, M. S. BYU	Ammonoids from lower Deseret Limestone near Grantsville, Utah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51	Ritzma, Howard R. Utah Geol. Survey	Studies of oil impregnated rocks; SE Wayne and NE Garfield Counties; Argyle Creek, southwestern Duchesne County; Virgin River east of St. George; White Canyon, west central San Juan County; Uinta Basin structure
52	Robison, Richard Utah Geol. Survey	Industrial limestones of central Utah
53	Rigby, J. Keith BYU	Geology of the Stansbury Mountains, Tooele County, Utah
54	Rowley, Peter D. Univ. of Texas	Black Mountains Utah and vicinity (Ph.D)
55	Scales, John Univ. of Iowa	Petrography of porphoritic of Flagstaff Mountain area, Utah (Ph.D)
56	Schell, E. M. U.S.G.S.	Geologic map of the Jessen Butte quadrangle, Daggett County, Utah and Sweetwater County, Wyoming
57	Seibert, C. C. J. Univ. of Utah	Stratigraphy and paleontology of phosphate-bearing Mississippian rocks of northern Utah (M.S.)
58	Smith, H. P. Univ. of Utah	Paleoecologic studies in the lower Triassic series of western Utah (Ph.D)
59	Smith, Robert K. Univ. of Iowa	Petrology of the contact metamorphic aureole of the Alta Stock, Utah (Ph.D)
60	Stephens, E. V. U.S.G.S.	Geologic map of the Wide Hollow Reservoir and Seep Flat quadrangles, Garfield and Kane Counties, Utah
61	Stokes, W. L. and Madson, J. Univ. of Utah	Cleveland-Lloyd dinosaur quarry
62	Stringham, Bronson Utah Geol. Survey	Alteration studies of the Beaver Lake Mountains
63	Stuart-Alexander, D. U.S.G.S.	Mule Ear diatreme
64	Sumsion, C. T. U.S.G.S.	Hydrologic investigation of the Spanish Valley area, Grand and San Juan Counties, Utah
65	Szabo, Ernest Univ. of New Mexico	Paleotectonics of Paradox region
66	Taylor, C. M. Exploration Lab., Inc.	West extension of Silver Reef Mining district
67	Threet, Richard L. San Diego State College	The Kanab Creek lineament and possible left slip in the Arizona strip, Kanab, Utah and Fredonia, Arizona, 15 minute quadrangles
68	Tooker, E. W. U.S.G.S.	Geology of Lark quadrangle, underground studies in U. S. and Lark mines; mineral phases in ore and associated wall rock alteration in Bingham Pit, Salt Lake County
69	U.S.G.S.	Geologic map of the Phil Pico Mtn. quadrangle, Daggett County, Utah and Sweetwater County, Wyoming
70	U.S.G.S.	Geologic map of the Gilbert Peak quadrangle Summitt County, Utah and Uintah and Sweetwater Counties, Wyoming
71	Van Dorston, Philip L. Utah State Univ.	Environmental analysis of Swan Peak Formation, northern Utah and southern Idaho
72	Van Horn, Richard U.S.G.S.	Geology of Salt Lake City and vicinity, Utah
73	Wang, Fay Univ. of Utah	Gilson Mountain vicinity (geophysics)
74	Washburn, Alan T. BYU	Morrowan Crinoidea from the southern Wasatch Mountains of central Utah
75	Weiss, Malcolm P. Northern Illinois Univ.	Stratigraphy and petrology of Flagstaff Formation, Wasatch Plateau
76	Wengerd, Sherman A. Univ. of New Mexico	Major petroleum prospects in the Paradox Basin
77	Winkler, Gary R. Univ. of Utah	Geologic history of the Green River
78	Young, A. Univ. of Utah	Goose Creek range, Tooele County (Ph.D)
79	Zeller, H. D. U.S.G.S.	Geologic maps of the Canaan Creek, Carcass Canyon, Dave Canyon, Death Ridge, and Horse Flat quadrangles, Garfield and Kane Counties, Utah
80	Ziony, J. I. UCLA	Analysis of systematic jointing in part of Monument upwarp, southeastern Utah (Ph.D)
81	Utah Geol. Survey Staff	Mercur district, reconnaissance

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This issue of the *Quarterly Review* is devoted primarily to a compilation of the 1967 publications dealing with the geology and mineral industry of Utah. The Utah Geological Survey gratefully acknowledges the assistance of the University of Utah Engineering Library staff, under the direction of Miss Edith Rich, and Mrs. Bernice Y. Smith, technical editor, Utah Geological Survey ,in the compilation of the data contained herein.

It has been our goal to make this listing as complete as possible. If the reader is aware of other pertinent publications that do not appear in the list below, please call them to our attention.

The 1967 publications are listed first by author alphabetically, and then by subject classifications.

An additional listing of publications is on open file in the Utah Geological Survey Office, 103 Utah Geological Survey Building, University of Utah, Salt Lake City, Utah.

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2. Geology and fuel resources of the Green River Formation, southeastern Uinta basin, Utah and Colorado: U.S. Geol. Survey Prof. Paper 548, 48 p., 1967.
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3. See Doelling, H. H. —3.

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2. See Roberts, R. J. —1, 2.

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Editor's note: In press is a supplement to the May Quarterly, which will include a continuation of the above bibliography and introductory articles and a bibliography relative to field studies made in southeastern Utah by Ohio State University Professors Edmund Spieker, and James W. Collinson.

UTAH GEOLOGICAL AND MINERALOGICAL SURVEY

SUPPLEMENT TO QUARTERLY REVIEW

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Ohio State University Field Work

By JAMES W. COLLINSON
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A special interest in the geology of central Utah by Ohio State University extends back to 1924, the year E. M. Spieker joined its faculty.

Professor Spieker had been supervising field parties of the U.S. Geological Survey in the region since 1921. His first student to work in central Utah, S. L. Schoff, completed an M.A. in 1931 and a Ph.D. in 1937.

With the advent of the field station in 1947, many more students were introduced to the challenging geology of the region. Since then, 555 geology majors from Ohio State and 15 other colleges and universities have completed the rigorous field course. The station has been served by 22 different staff members, including representatives from 10 other institutions.

This coming summer, the staff and students of Northern Illinois University are joining the program.

Geologic problems in central Utah have been the subject of 31 M.S. theses and 12 Ph.D. dissertations at Ohio State. By 1956, Ohio State geologists had completed the geologic mapping of all Sanpete County and large parts of the surrounding counties.

One of the great contributions to the success of the field station has been the hospitality of the citizens of Ephraim and Sanpete County and the cooperation of Snow College, which rents part of its facilities to Ohio State each summer.

The Ephraim Lions Club sponsors an annual picnic at which Ohioans and Utahns match their athletic prowess in softball and raise their voices in a songfest. Several Ohio State boys have married girls from Sanpete Valley.

During initial planning for the field-training program, Professor Spieker considered experimenting with a course to introduce geology to beginning students in the field. These plans were put aside for many years, as it was all the station could do to accommodate the returning veterans and the upsurge of geology majors in the 1950's.

In 1962, the National Science Foundation agreed to support a proposal by Professor Spieker for an institute in Utah to introduce geology to high school science teachers.

Each summer, out of several hundred applicants, 25 teachers from all over the United States have been invited to participate and to bring their families to Ephraim.

This year the proposal was renewed for another three years and the number of stipends was increased to 28.

And finally, this summer Ohio State, in cooperation with Northern Illinois University, is initiating the long-deferred field program in introductory geology for college students.

Presently the professional-level course for geology majors is eight weeks long. Most students travel to Ephraim in a caravan of Ohio State field vehicles, and make many geologic stops along the way.

The course begins with a reconnaissance of the region. Short study projects introduce the class to a variety of rocks, structures, and landforms, and at the same time develop skill in the field methods.

During the last half of the course the classes divided into parties of two or three students, which are assigned to map field areas of 10 to 12 square miles. Each area includes a variety of structural and stratigraphic problems that are subject to several interpretations. Maps are compiled on aerial photos and topographic sheets.

At mid-season the class travels to the canyon country of southern Utah and adjacent Arizona, and visits Bryce, Cedar Breaks, Zion, and Grand Canyon National Parks. The trip culminates in an overflight of the canyon country and central Utah.

The vitality of a field-training program is strongly influenced by the continuous challenge of related research in the surrounding region.

Now that the reconnaissance and field-mapping stages in the investigation of the region are mostly completed, Profs. E. M. Spieker and J. W. Collinson, Ohio State University, and M. P. Weiss, Northern Illinois University, with the support of the U.S. Geological Survey, plan to compile all previous maps into a uniform series of quadrangle maps.

It is hoped that this compilation will serve as a basis for future investigations into problems solved by specialized work in such fields as geochemistry, geophysics, and sedimentary petrology.

COURSE BACKGROUND

By EDMUND M. SPIEKER
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For many years, I had little faith in college field-training courses. Experience in USGS field parties, with assistants who were alumni of such courses, convinced me they had never been caused to do any real field work, or had been instructed by men who knew nothing about it.

I used to say they would have been better off, if they had never had such a course; so, during the first 20 years or so of my tenure in the Department of Geology, I had nothing to do with the field course then operated by the department.

I thought then, the only effective way for a beginner to get sound training would be to work as assistant in a party at genuine field work, under the leadership of a competent field geologist. I actually guided some of my students into such experience.

About the time of World War II, however, I began to think that a field course, run — as nearly as possible

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like projects of the USGS — on a strictly professional plane, with students taking full responsibility for the study and mapping of definite areas . . . might not only do the job, but, possibly, do it better. Emphasis might be laid on training and variety of experience — with the faculty merely helping in the work, and showing by example how it should be done.

Therefore, at the end of the war, faced with a surge of students from war theaters, eager to get on with their studies and to make up for years lost, I decided to give it a trial.

In the summer of 1946, I went to the area in Utah, where I had done most of my own field work. Centering on Sanpete Valley, I searched for a suitable site, on which to establish a field station . . . I looked over five possible locations — three abandoned CCC camps, a POW enclave, relinquished by the government at war's end, and Snow College facilities in Ephraim.

I was chary about the geology accessible from Ephraim. . . It seemed both too complex and not well enough exposed for beginners. To the south, east of Salina, for example, there was plenty of well-exposed geology, combining the complex with an abundance of the simple. However, largely under the gentle but persistent suasion of S. S. van Boskirk in the office of the Manti National Forest at Ephraim, I yielded to the blandishments of Snow College, and decided to settle there.

I consoled myself with the thought that the mixture in that area of the simple (not much of it) and the complex might, after all, be better than a dominance of the simple.

At summer's end, then, I worked out an agreement with President Nuttall of Snow College that later was formally ratified between him and President Bevis of Ohio State.

In June of 1947, the first contingent of students traveled in convoy from Columbus to Ephraim to launch the operation.

We started out under severe logistic difficulties. We had a hard time getting field equipment, and that year, waiting lists for new automobiles were very long. We did not actually know, until mid-June, whether we would be able to go, or not. Thanks to the influence of prominent alumni in Detroit and to the friendly ministrations of John B. Fullen, Alumni Secretary, we got (out of turn) four Plymouth station wagons and a big, red Ford truck. The operation was under way.

We had already obtained, in 1945, a brand-new Army surplus jeep, (cost $700, plus $50 to put it together) and a fine Ford station wagon (cost $1,230); so we were adequately set up for transportation. The jeep served well from the beginning, and, despite more than 20 years in rugged mountain areas, where it has been called upon to go almost anywhere (commonly across country away from roads or trails), it is still in service. Its fractured frame is welded in several places, and there are other scars, but the engine has never been opened. However, it is probably seeing its last days as a fully useful field vehicle.

Note: Dr. Edmund M. Spieker has devoted much of his career in geology both as geologist for the United States Geological Survey and as professor of geology at Ohio State University, to Sanpete County and adjoining areas. Through his work and that of his students and faculty associates, the stratigraphic and structural relationships of the complex group of Mesozoic and Tertiary rocks in this area have been determined. Students who made thesis studies in central Utah have since become distinguished scientists and leaders in their profession, and their studies represent major contributions to the geology of Utah. The following bibliography is an impressive indication of the breadth and depth of their endeavors. The Utah Geological Survey is happy to bring this work and the Ohio State University Geology Summer Camp to the attention of readers of the *Quarterly*.

Eugene Callaghan,
Assistant Director, UGMS

Our first experience showed emphatically that I had been wrong in my assumptions as to the needs of beginners, but right in my final decision as to location of the field station.

For one thing, all but one of the students had just returned from the war, where they had undergone rugged life on the battlefields. The rigors of field work in the mountains were as nothing to them — they took everything in stride — and were eager to get on. They were more mature than the average college senior, and appreciated being given full responsibility for their jobs; so they accomplished more than has any group that followed them. Indeed, some of them managed — beyond the requirements of the training program — to get the data for Masters' theses, of which we have no cause to be ashamed.

Above all, I discovered something that I confess had never occurred to me: because they have no experience, beginners do not realize how difficult complex geology is. They simply barge in, systematically observe and collect data, and wait for interpretation and understanding to come when they can. This spirit and this mode of operation have prevailed ever since.

Special homage is due Dr. Charles H. Summerson, without whose hard, devoted work I could neither have organized the operation, nor put it through its first season. Dr. Summerson joined our faculty in the Spring Quarter of 1947. One principal duty then lay before him — to assist me in the launching of the field program.

As a matter of fact, in view of the experiences of later years, I have often wondered how we two managed to get through the first season, with 30 ambitious students and an inordinately stiff program.

All I can say is, we worked very hard.

OHIO STATE U.

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SUBJECT INDEX

Editor's note: The following is a continuation of the Subject Index published as "1967, Utah Geology in Print" in the May *Quarterly*.

Diggin's . . .

On May 22, David J. Leeds, Engineering Seismologist, Los Angeles, spoke on "Earthquake-Resistant Design Criteria in Protection of Population and Property in the State of Utah," at a meeting held at the U. of U.

Mr. Leeds, a representative of the firm of Danes and Moore, is a member of the Geologic Hazards Committee of the A. I. P. G., the Earthquake Research Institute, and is an advisor on seismic zoning for the International conference of Building Officials.

Mr. Leeds brought evidence from major earthquake occurrences around the world to bear on the Utah situation. He noted the need for strong motion seismographs is apparent in Utah, because of the state's relatively high seismicity. Characteristics of the motion of structures in the earthquake-prone areas may then be evaluated, he said.

Establishment of an *official* Governor's Committee on Geologic Hazards* perhaps is more important to the state. Such a committee would be comprised of structural engineers, geophysicists, geologists, urban planners, architects, seismologists,and soil engineers.

—B.N.K.

The *Quarterly Review* recently referred to Reprint 93 as Reprint 90. An apology is due those who have been inconvenienced by this error.

Reprint 93 (50¢), a paper by Andrew Edmunds Kurie reprinted from the Geological Society of America Bulletin, contains a map which covers the Colorado Plateau margin near Zion National Park. Site and section of an oil well being drilled by the Willard Pease Drilling Company are shown; section A-A′ passes in the vicinity of the well.

Mr. William L. Chenowith of the U. S. Atomic Energy Commission, Grand Junction, Colorado, has supplied the Utah Geological and Mineralogical Survey with uranium oxide (U_3O_8 and fluorine analyses of brine samples from the Great Salt Lake.

Averages for 12 samples from various depths down to 24.5 feet below the surface were: .32 parts per million U_3O_8 and 7 ppm F. More detailed information is available from the Utah Geological and Mineralogical Survey, 103 Utah Geological Survey Building, University of Utah, Salt Lake City, Utah.

*An unofficial committee has been active in Utah since April, 1967, under whose auspices this event was held.

The U. S. Geological Survey has announced it is releasing in open files three coal reports:

— Preliminary geologic map of the Canaan Creek quadrangle, 1:24,000, and coal sections (2 sheets).

— Preliminary geologic map of the Carcass Canyon quadrangle, Garfield and Kane Counties, Utah, by Howard D. Zeller. Map, scale 1:24,000, and coal sections (2 sheets).

— Preliminary geologic map of the Dave Canyon quadrangle, Garfield County, Utah, by Howard D. Zeller. Map, scale 1:24,000, and coal sections (2 sheets).

Copies are available for consultation in the U. S. Geological Survey Libraries: 1033 GSA Building, Washington, D. C. 20242; Building 25, Denver Federal Center, Denver, Colo. 80202, and 345 Middlefield Road, Menlo Park, Calif. 94025; and at the Geological Survey Public Inquires Office, Room 1012, Federal Building, Denver, Colo. 80202, and 8102 Federal Building, Salt Lake City, Utah 84111. Aepia copy that can be reproduced at private expense is available at the Denver and Salt Lake City Public Inquires Offices.

Harry Suekawa, research geologist, who recently received his masters degree in geology from the University of Utah, has left the Utah Geological Survey to join a private geologic consulting firm, Exploration Sciences Inc., 1355 Foothill Drive.

Mr. Suekawa came to the UGMS in 1965, and did summer field work on oil-impregnated sandstone in the P. R. Springs area. At the end of the season, he began on Great Salt Lake as research assistant to Dr. Robert E. Cohenour. He has devoted his research efforts to the lake since that time.

The Survey wishes Mr. Suekawa great success in his new endeavor.

At a recent meeting, the Board on Geographic Names approved for Federal use the name Pony Express Canyon in Utah, proposed by Kenneth C. Thomson, UGMS geologist.

This decision will be in Decision List 6801 and will read as follows:

Pony Express Canyon: pass, 2.5 mi. long, extends W from Clifton Flat to the valley of Deep Creek; separates Ochre Mountain on the N from the Deep Creek Mountains in the S; Tooele Co., Utah; 40°06′00″ N, 113°52′40″ W (E end), 40°06′00″ N, 113°55′30″ W (W end).

BLAST STUDIED

by BRUCE KALISER,
Utah Geological Survey, and
ROBERT B. SMITH,
Department of Geophysics

In its continual study of geologic hazards in Utah, the Engineering Geology Division of the Utah Survey is working in cooperation with the U. of U.'s Department of Geophysics.

It is our desire to learn more about the relationship that the substrate has to potential danger to structures, especially in the Salt Lake Valley and along the Wasatch Front areas.

The 1.2 megaton explosion of April 26, as yet, America's largest underground thermonuclear test, offered an opportunity to monitor its effects and to acquire much-needed data. The blast — equivalent to an earthquake of magnitude 6.4 on the Richter scale — was felt throughout Nevada and parts of adjacent states.

Salt Lake Valley received a significant 10-minute burst of seismic energy that resulted in at least 15 reports of vibrations and motions associated with the blast.

Measured ground accelerations ranged from approximately 0.0005 to 0.007 g's (1 g = normal value of earth's gravity). These accelerations are thought to be anomalously high, considering the distance from the source of energy.

Accelerations and vibratory sensations recorded for the relatively thick deposits of weak unconsolidated basin sediments also were unnaturally large. Because it is a body of relatively low rigidity, the basin's reaction to the seismic disturbance may be likened to that of a shaking bowl of gelatin with a resultant increase in seismic motion.

The region of maximum potential geologic hazard probably would coincide with this area.

Hopefully, future observations and research will provide information on which sound engineering and geologic practices may be based.

QUARTERLY REVIEW

State of Utah .....*Calvin L. Rampton, Governor*
University of Utah .....*James C. Fletcher, President*
College of Mines & Mineral Industries .....*George R. Hill, Dean*
Utah Geological & Mineralogical Survey .....*William P. Hewitt, Director*

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